

EMBEDDED HEAT SPREADER BALL GRID ARRAY

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ABSTRACT

A heat slug or spreader is attached directly to a surface of the die in a ball grid array (BGA) package. The heat spreader roughly conforms to the topological profile of the die, underlying substrate, and electrical interconnections between the die and the substrate, such as bond wires. The outer portion of the heat spreader substantially cover the outer portion of the substrate, or alternatively, cover only those portions extending in laterally from the sides of the chip and not the corners. An encapsulant completely covers the heat spreader and die.

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